

**New Species of Bees in the Genera *Euplusia* and *Eufriesia***

(Hymenoptera: Apidae, Euglossini)

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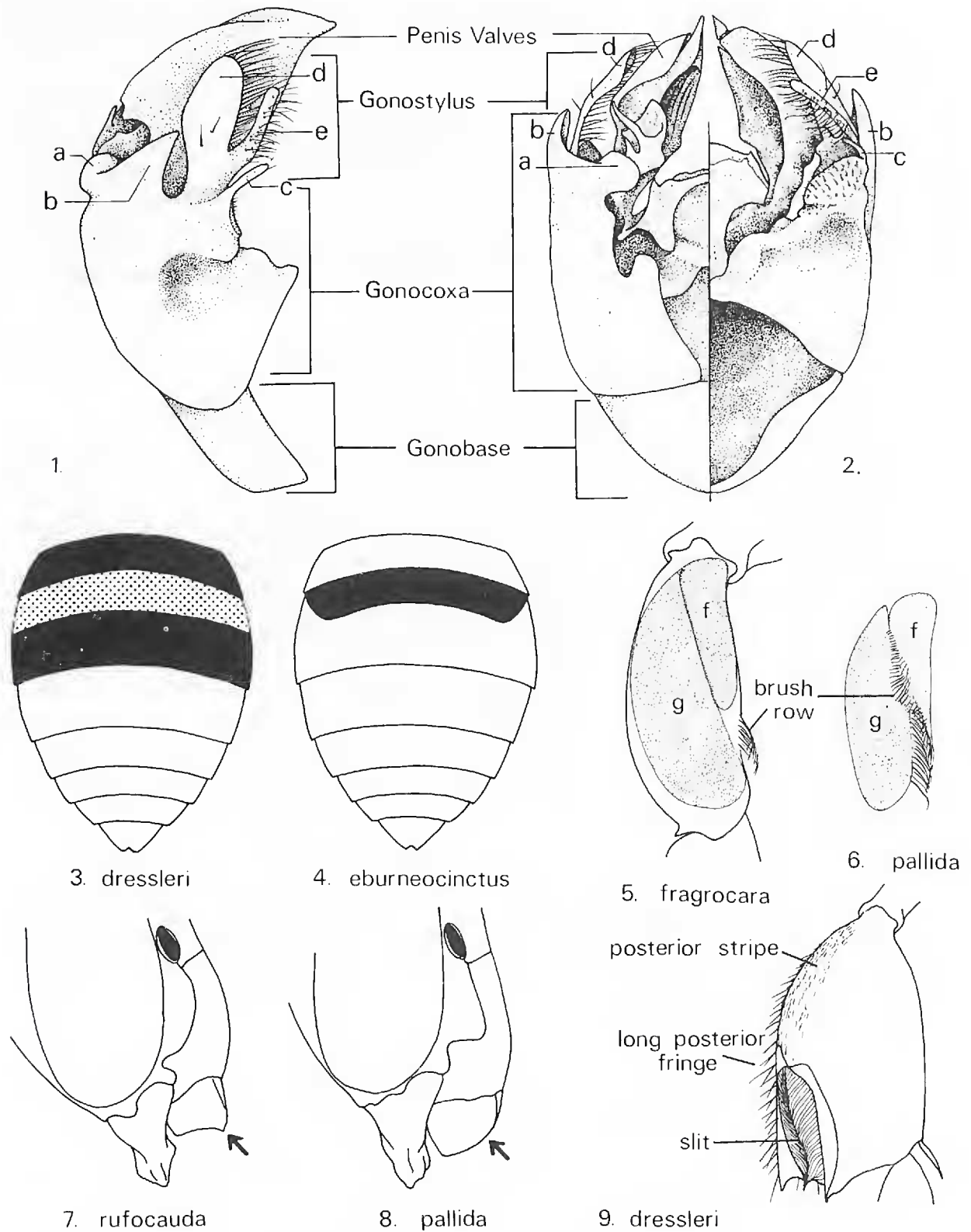
In the tribe Euglossini the non-parasitic genera *Euplusia* and *Eufriesia* are the most poorly represented in museum collections. With the advent of chemical "trapping" the numbers have increased and numerous new species previously uncollected have been found. Because of the numbers of new species being discovered in well traveled areas it is quite likely that there are many more than are described in this paper. As more collecting is done in parts of South America and Central America, especially between Costa Rica and Mexico, the ranges of many known species will undoubtedly be extended and more new species located. The present paper is part of a general revision of the genus *Euplusia* which is now in preparation.

To avoid confusion, simplified names have been used for specialized structures on the mid and hindlegs and male genitalia. Instead of attempting to describe these and make them more confusing than necessary they are illustrated in figures 1-9. Tongue length is considered to be the distance from the fold at the base of the mandibles to the labial palpi. All integumental colors in the descriptions with the exceptions of black and brown should be understood to be metallic in nature. In the following descriptions the thorax is assumed to include the propodeum and the abdomen is the apparent abdomen. Holotypes will be deposited in the institutions listed in the descriptions, the paratypes will be distributed among the following institutions as far as possible: University of California at Davis (UCD), American Museum of Natural History (AMNH), University of Kansas (KU), U.S. National Museum (USNM), and R. Dressler Collection, Smithsonian Tropical Research Institute (STRI). I would like to thank Dr. R.M. Bohart for reading this paper and giving comments and criticism.

***Euplusia anisochlora*, new species**

(Figs. 10, 22, 34)

Male: body length 15mm; tongue length 4mm, reaching midcoxa; head green; thorax green with scutellum blue-green; legs green to blue-green; hindtibia covered with short scattered appressed silvery pubescence, long posterior fringe black; tergum I blue-green; II-III purplish green with short black setae; IV-VII orange to coppery with long yellowish orange setae; clypeus with medial ridge broken, indistinct, punctures large and shallow; frons with large deep punctures to medium or small ones, striatiform in ocellar area; labrum with short median welt and two sublateral pointed ridges, appearing pointed in lateral view; mesopleuron laterally with medium punctures; midtibia with brush row as wide as tall, anterior felty patch half as long as posterior one; hindtibia with no process



Figs. 1-2. Male genital capsule, gonocoxal lobes (a-c), dorsal (a), lateral (b), ventral (c); gonostylar lobes (d-e), dorsal (d), ventral (e). 1, lateral view. 2, dorsal view left side, ventral view right side. Figs. 3-4. Tergal markings. Figs. 5-6. Male midtibial felty patches, anterior patch (f), posterior patch (g). Figs. 7-8. Male labrum lateral view. Fig. 9. Male hindtibia.

above spurs; sternum VIII lobes three times as long as wide and far apart (fig. 10); IX apically produced into two dorsal points in lateral view (fig. 22); gonostylus in lateral view with ventral lobe shorter than dorsal lobe; gonocoxal dorsal lobe a third as long as gonostylus (fig. 34).

Holotype Male, Cerro Jefe, Panama Prov., Panama, VI-24-1974 (R.L. Dressler, UCD). Paratypes, 4 ♂♂, Cerro Campana, Panama Prov., Panama, June-July; 2 ♂♂, Cerro Jefe, Panama Prov., Panama, May-June.

This species has only been found in central Panama. Except *caerulescens* there are no other *Euplusia* in Central America in which the male is predominantly green. It is distinguishable by having terga IV-VII bronzy to coppery, no special structure above the hindtibial spurs and the clypeus without a carina. It is labelled in some collections and publications as RD-935. Females are unknown.

***Euplusia boharti*, new species**  
(Figs. 11, 23, 35)

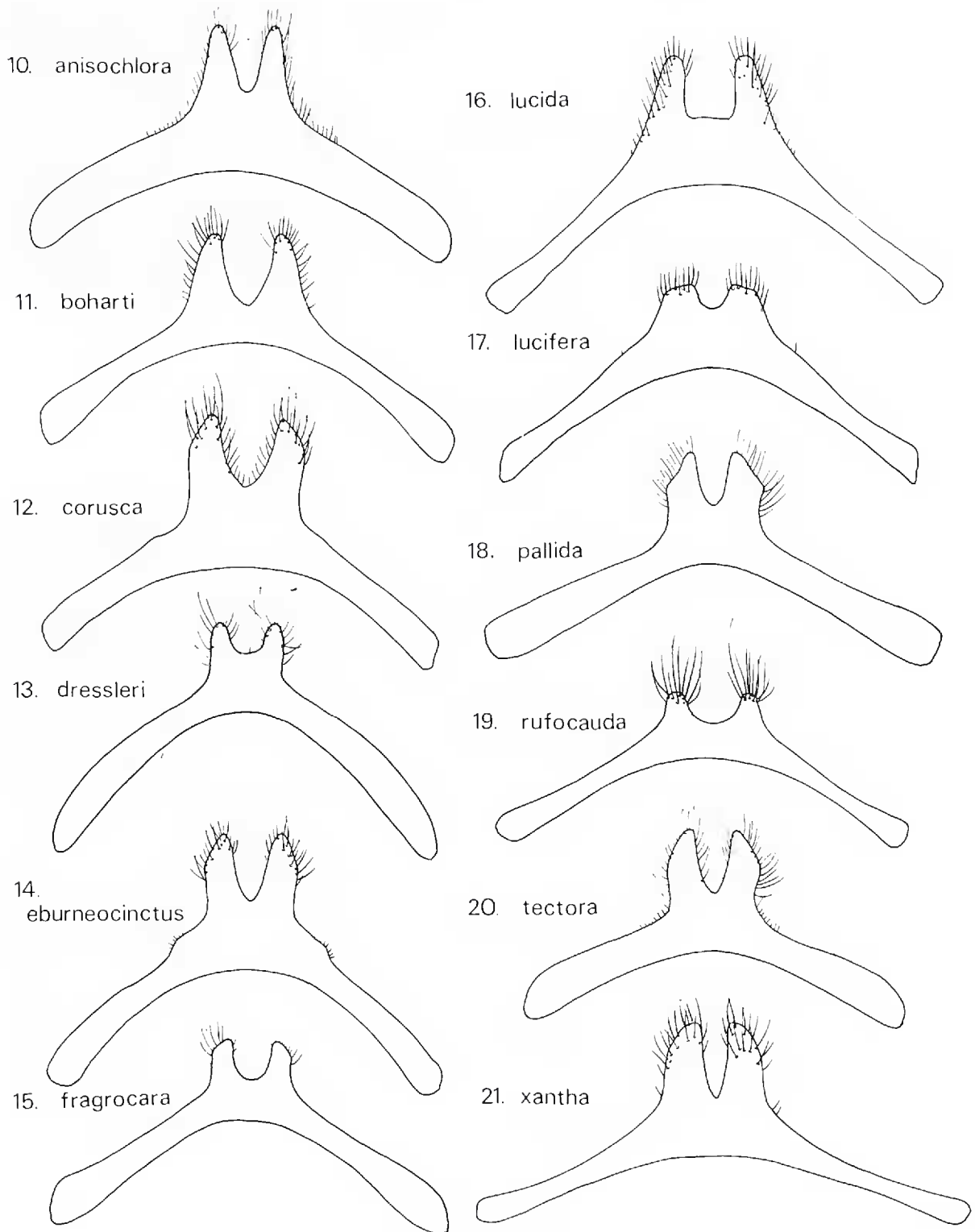
Male: body length 15mm; tongue length 5mm, reaching midcoxa; face yellowish green with clypeal ridge coppery; labrum dark blue-green; vertex and rest of head violet; scutal patches and anterior half of tegula blue-green; rest of thorax and tegula purple; legs purple to black except foretibia bluish; hindtibia with sparse band of short appressed gold pubescence on anterior margin, long posterior fringe black; terga I and II purplish black with black setae; III-VII greenish black with pale yellow setae; clypeus with one medial ridge, punctures large and shallow; frons with scattered large and small punctures; labrum with two sublateral pointed ridges and medial ridge equal in length, meeting medially; vertex with shallow medium and small punctures, polished and impunctate around ocelli and antennal sockets; mesopleuron laterally with medium punctures; midtibial brush row as wide as tall, separate from anterior felty patch, anterior patch a third as long as posterior one; sternum VIII lobes twice as long as wide and as far apart as tall (fig. 11); sternum IX apically with one dorsal point, ventral angle rounded in lateral view (fig. 23); gonostylar ventral lobe longer than dorsal; gonocoxal dorsal lobe a third as long as gonostylus (fig. 35).

Holotype Male, Rancho Grande, Aragua, Venezuela, IX-20-1973 (R.M. Bohart, UCD).

This species is similar to *andina* and *magretti*, but distinguishable by the bright yellowish green face, terga II-VII dark green and sternum VIII with lobes twice as long as broad and two-thirds as far apart as long. No female is known.

***Euplusia corusca*, new species**  
(Figs. 12, 24, 36)

Male: body length 17mm; tongue length 7mm, reaching midcoxa; face green; rest of head black; scutal patches and tegula green; scutum and scutellum black with green margins; rest of thorax dark green to black; hind tibia with green stripe on posterior margin above slit, sparsely covered with short appressed yellow pubescence, long posterior fringe black; terga I-VII yellowish green; clypeus with medial welt impunctate and sublateral welts indistinct and punctate, punctures large, striatiform, becoming sparse toward antennal depressions; frons with large and small, deep punctures; vertex with small punctures, polished around ocelli; labrum with two sublateral ridges and a shorter medial ridge, appearing pointed in lateral view; mesopleuron laterally with medium and small punctures; midtibial brush row wider than tall, discontinuous with anterior felty patch, anterior patch more than half as long and half as wide as posterior one; sternum VIII lobes produced on elevated region, twice as long as broad (fig. 12); sternum IX apically produced into one elongate point in lateral view (fig. 24); gonostylar dorsal lobe equal in length to ventral lobe; gonocoxal dorsal lobe half as long as gonostylus (fig. 36).



Figs. 10-21. Sternum VIII. 10-16, 18-21, *Euplusia*; 17, *Eufriesia*.

Female: body length 18mm; tongue length as in male; face steel blue; rest of head, thorax and legs bluish black or black; tergum I dark green with short black setae; II-VI yellowish green, bronzy or orange depending on angle of light with yellow setae; clypeus with strong medial ridge, punctures large, dense and striatiform; labrum with short medial carina; antennal socket ringed by polished impunctate area; frons with scattered, deep, large and small punctures; vertex with small to medium punctures and dense micro-punctures around hindocelli.



Holotype Male, Barro Colorado I., Canal Zone, Panama, VI-13-1968 (R.L. Dressler, UCD). Paratypes, 4 ♂♂, same as Holotype, attracted to methyl cinnamate; 1 ♂, Pina area, Canal Zone, Panama, V-14-1959.

There is some similarity to *superba* in coloration, but this species has only one medial ridge and the long posterior fringe of the hindtibia in the male is pale, not black as in *superba*. The female characteristically has tergum I green and II-VI green to coppery. This species is tagged in some collections as RD-960. It is found in southern Costa Rica and Panama.

**Euplusia dressleri, new species**  
(Figs. 3, 13, 25, 37)

Male: body length 18mm; tongue length 7mm, reaching midcoxa; face green to yellowish green; labrum black with some green laterally; rest of head black; scutal patches and tegula green; rest of thorax dark green to black; legs with some green on tibia, hindtibia with short appressed pubescence on green integumental stripe on posterior margin above slit, long posterior fringe yellow; forewing with medial cell darkened; tergum I black with some green highlights, covered with black setae; II anterior half green with yellow setae, posterior half black with black setae; III-VII bronzy with yellow setae (fig. 3); clypeus with medial ridge indistinct, punctate, punctures large, shallow, striatiform; antennal depressions with small to medium punctures; vertex with small punctures and micropunctures around ocelli; mesopleuron laterally with medium and small punctures; midtibial brush row wider than tall, anterior felty patch half as long and wide as posterior one; sternum VIII lobes 1.5 times as long as broad and far apart (fig. 13); sternum IX produced into two apical points in lateral view (fig. 25).

Holotype Male, Piña area, Canal Zone, Panama, V-18-1968 (R.L. Dressler, UCD). Paratypes, 7 ♂♂, same data as Type.

This species is only found in central Panama. Although similar to *elegans* in coloration the tongue is much shorter, reaching only the midcoxa and not sternum II, and the hindtibia is not completely clothed in yellow pubescence in the male as in *elegans*. Another characteristic is the lack of clypeal ridging. This species has been previously designated in some collections as RD-930.

**Euplusia eburneocincta, new species**  
(Figs. 4, 14, 26, 38)

Male: body length 19mm; tongue length 6mm, reaching hindcoxa; face dark green; rest of head black; scutal patches dark green; rest of thorax black; legs black; hindtibial posterior margin above slit clothed in short appressed gold pubescence, long posterior fringe black; forewing with medial cell darkened; tergum I brown with dense whitish yellow setae; II with narrow anterior band of yellowish orange setae, wide medial brown band with black setae, posterior half coppery with yellowish orange setae; III anterior third purplish green with black setae, posterior part with yellowish orange setae; III-VII purplish green with yellowish orange setae (fig. 4); clypeus with impunctate medial welt between two parenthesis shaped punctate welts; labrum with two strong sublateral carinae and shorter medial welt, appearing pointed and slightly hooked in lateral view; clypeus with large shallow punctures; frons with large and small punctures; vertex with dense micropunctuation and scattered small punctures; midtibial brush row wider than tall, anterior felty patch half as long and wide as posterior one; mesopleuron laterally with

medium and small punctures; sternum VIII lobes twice as long as wide and far apart (fig. 14); IX produced apically into two points in lateral view (fig. 26); gonostylar dorsal lobe longer than ventral; gonocoxal dorsal lobe less than half as long as gonostylus (fig. 38).

Female: body length 21mm; tongue length 9mm, reaching sternum I; head, thorax and legs dark brown; tergum I brown with dense yellowish white setae; II anterior half black with short black setae, posterior half coppery with dense yellowish orange setae; III-V coppery with dense yellowish orange setae; VI bluish with dense yellowish orange setae; clypeus with one medial polished ridge; face with medium punctures becoming smaller towards frons and in antennal depressions; frons and vertex with dense small and scattered medium punctures.

Holotype Male, Dawa, Guyana, VIII-4-1969 (R. Hamer, USNM). Paratypes, 1 ♂, Santa Maria Erebato, Dto. Cedeño, Edo. Bolivar, Venezuela, attracted to vanillin, VIII-10-1975; 4 ♀♀, "Katabo" (Kartabo?), Bartica Dist., British Guyana, VII-9-1919.

No other species of *Euplusia* has tergum I clothed in dense yellowish white setae and tergum II with the anterior third to half black. It is found in Guyana and Venezuela.

### ***Euplusia fragrocara*, new species**

(Figs. 5, 15, 27, 39)

Male: body length 16mm; tongue length 9mm, reaching hindcoxa; head green with facial hair white; thorax green with scutal patches lighter; legs green except hindtibia lower half purple, with scattered short appressed yellow pubescence on anterior margin, long posterior fringe black; terga I-VII green, I-III with dark brown setae dorsally and long yellowish orange setae laterally, IV-VII with yellowish orange setae; clypeus with strong impunctate medial ridge and two sublateral punctate welts, punctures large; antennal depression with small to medium punctures, polished around sockets; frons and vertex with scattered medium and small punctures; labrum with two sublateral carinae and shorter medial welt, appearing broadly pointed in lateral view; mesopleuron laterally with medium and small punctures; midtibial brush row separate from anterior felty patch and taller than wide, anterior patch half as long and as wide and as far apart as tall (fig. 5); sternum VIII lobes twice as long as wide and as far apart as tall (fig. 15); IX apically with one dorsal point and ventral angle rounded in lateral view (fig. 27); gonostylar ventral lobe twice as long as dorsal lobe; gonocoxal dorsal lobe half as long as gonostylus (fig. 39).

Holotype Male, Rio Pachitea, Huanuco Prov., Peru, II-6-1975, attracted to vanillin (R.L. Dressler, UCD). Paratypes, 5 ♂♂, same data as Type.

The male of this species appears much like *violacea* in coloration. It is generally larger and has a strong medial clypeal ridge which is lacking in *violacea*. Also the midtibial brush row is separate from the anterior felty patch whereas it is continuous in *Violacea*. The female is unknown. It is found in Peru and Ecuador.

### ***Euplusia lucida*, new species**

(Figs. 16, 28, 40)

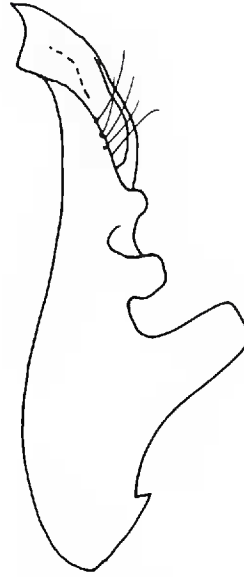
Male: body length 14mm; tongue length 19mm, exceeding tip of abdomen; clypeus coppery; frons and antennal area green; vertex and rest of head bluish purple; scutal patches and tegula green; rest of thorax bluish purple; legs purple with some green margins, hindtibia with scattered gold appressed pubescence, long posterior fringe yellowish brown; terga I-VII green to coppery depending on angle of light, terminal segments more strongly coppery, tergum I with some black setae on anterior margins, rest of tergum and



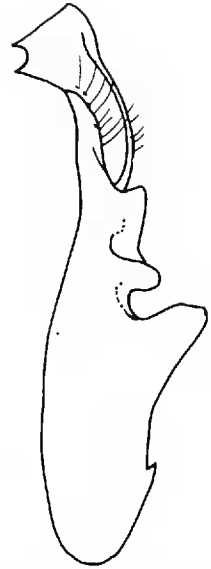
22. anisochlora



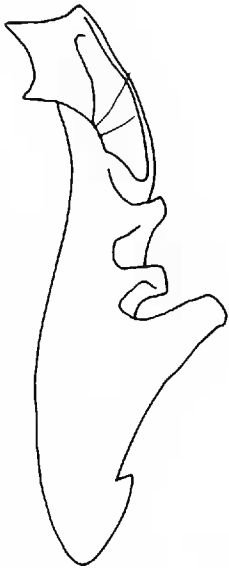
23. boharti



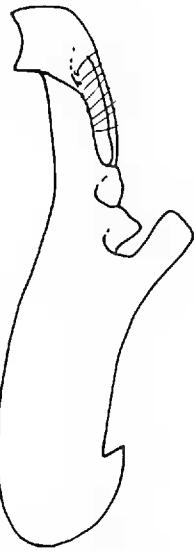
24. corusca



25. dressleri



26. eburneocinctus



27. fragrocara



28. lucida



29. lucifera



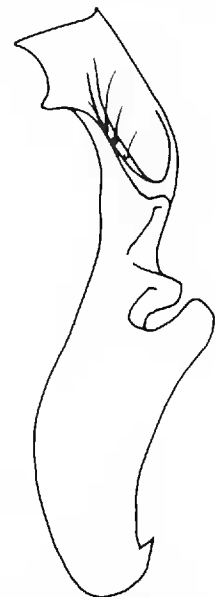
30. pallida



31. rufocauda



32. tectora



33. xantha

Figs. 22-33. Sternum IX. 22-28, 30-33, *Euplusia*; 29 *Eufriesia*.

II-VII covered with long golden setae; clypeus with medial impunctate welt, punctures medium and shallow; antennal depression with large impunctate area on ocular side of socket, punctures medium and shallow; frons with dense medium and small, deep punctures; vertex with medium and small punctures; labrum with two sublateral welts appearing broadly pointed in lateral view; mesopleuron laterally with medium punctures; midtibial brush row wider than tall, anterior felty patch half as long and wide as posterior one; sternum VIII lobes twice as long as broad and as long as far apart (fig. 16); IX with one dorsal point, ventral angle rounded in lateral view (fig. 28); gonostylar dorsal lobe shorter than ventral one; gonocoxal dorsal lobe two-thirds as long as gonostylus (fig. 40).

Holotype Male, Valle Anchicaya, Colombia, I-23-1971, attracted to vanillin (H. Kennedy, UCD). One other specimen has been seen: a ♂ from Napo, El Neme Alluro, Ecuador, VI-28-1969, attracted to cineole.

This species is similar to *macroglossa* superficially, having an equally long tongue. The face is coppery, green and blue not steel blue as in *macroglossa*. The genitalia is also characteristic with the dorsal lobe of the gonostylus shorter than the ventral lobe and the ventral angle of sternum IX rounded. Only two specimens have been seen, one from Colombia and one from Ecuador. The female is unknown.

### ***Euplusia pallida*, new species**

(Figs. 6, 8, 18, 30, 42)

Male: body length 16mm; tongue length 16mm, reaching tip of abdomen; face green with coppery highlights; rest of head dark violet, covered sparsely with erect yellow setae; scutal patches and anterior half of tegula yellowish green with dense whitish setae; rest of thorax dark green to blue-green; fore and midtibia blue-green; hindtibia black with integumental blue-green stripe along posterior margin with short appressed coppery pubescence, long posterior fringe yellow; rest of legs black; tergum I coppery with brown setae; II-III coppery with yellowish orange setae; IV-VII yellowish green with pale yellow setae; clypeus centrally depressed with medial welt, punctures large; frons and antennal depressions with small to medium punctures, narrowly polished around sockets; vertex with micropunctation and scattered small punctures; labrum with three ridges, broadly pointed in lateral view (fig. 8); mesopleuron laterally with medium punctures; midtibial brush row wider than tall, anterior felty patch half as long and wide as posterior one (fig. 6); hindtibia with strong knob above spurs; sternum VIII lobes three times as tall as wide and far apart (fig. 18); IX with two apical points in lateral view (fig. 30); gonostylar ventral lobe longer than dorsal lobe; gonocoxal dorsal lobe less than half as long as gonostylus (fig. 42).

Holotype Male, Tuxtla Gutierrez, Chiapas, Mexico, VII-1968, attracted to d-carvone (C.H. Dodson, UCD). Paratypes, 3 ♂♂, same data as Type.

This species is very similar to *surinamensis* and *mexicana*. It differs in the following ways: the tongue is longer, reaching the tip of the abdomen; tergum I is coppery rather than dark brown or black; and the scutal patches are covered with dense off-white setae rather than yellow or brown. No female is known. It is found in southern Mexico.

### ***Euplusia rufocauda*, new species**

(Figs. 7, 19, 31, 43)

Male: body length 14mm; tongue length 7mm, reaching hindcoxa; face below antennal sockets coppery; frons yellowish green; vertex and rest of head purple; scutal patches



and anterior half of tegula green; rest of scutum purple; scutellum black; rest of thorax purple; legs black with some metallic highlights except hindtibia dark purple with scattered short appressed yellow pubescence becoming denser on upper half, long posterior fringe black; tergum I reddish purple with black setae; II reddish purple with black setae, posterior corners orange with yellow setae; III-VII orange or green depending on angle of light, with long yellow setae; clypeus with three low punctate welts; face with large shallow punctures becoming small and less distinct on vertex, polished around ocelli; labrum produced into two tooth-like processes, appearing sharply pointed in lateral view (fig. 7); mesopleuron laterally with medium and small punctures; midtibia with large brush row, wider than tall, anterior felty patch half as long and wide as posterior one; sternum VIII lobes as wide as tall and twice as far apart as tall (fig. 19); sternum IX produced into two apical points in lateral view (fig. 31); gonostylar ventral lobe shorter than dorsal; gonocoxal dorsal lobe a third as long as gonostylus (fig. 43).

Female: body length as in male; tongue length shorter, only reaching midcoxa; head, thorax and legs purple; terga I and II violet with black setae, posterior corners of II scarlet with yellowish orange setae; II-VI scarlet with green posterior margins and yellowish orange setae; clypeus with medial welt; face with large punctures becoming small on vertex, polished and impunctate around ocelli.

Holotype Male, Cerro Campana, Panama Prov., Panama, VII-11-1976 (L.S. Kimsey, UCD). Paratypes, 14 ♂♂, same data as Type, April-July; 4 ♂, 4 ♀, Cerro Jefe, Panama Prov., Panama, April-July and December; 1 ♂, 4 ♀, Cerro Azul, Panama Prov., Panama, July.

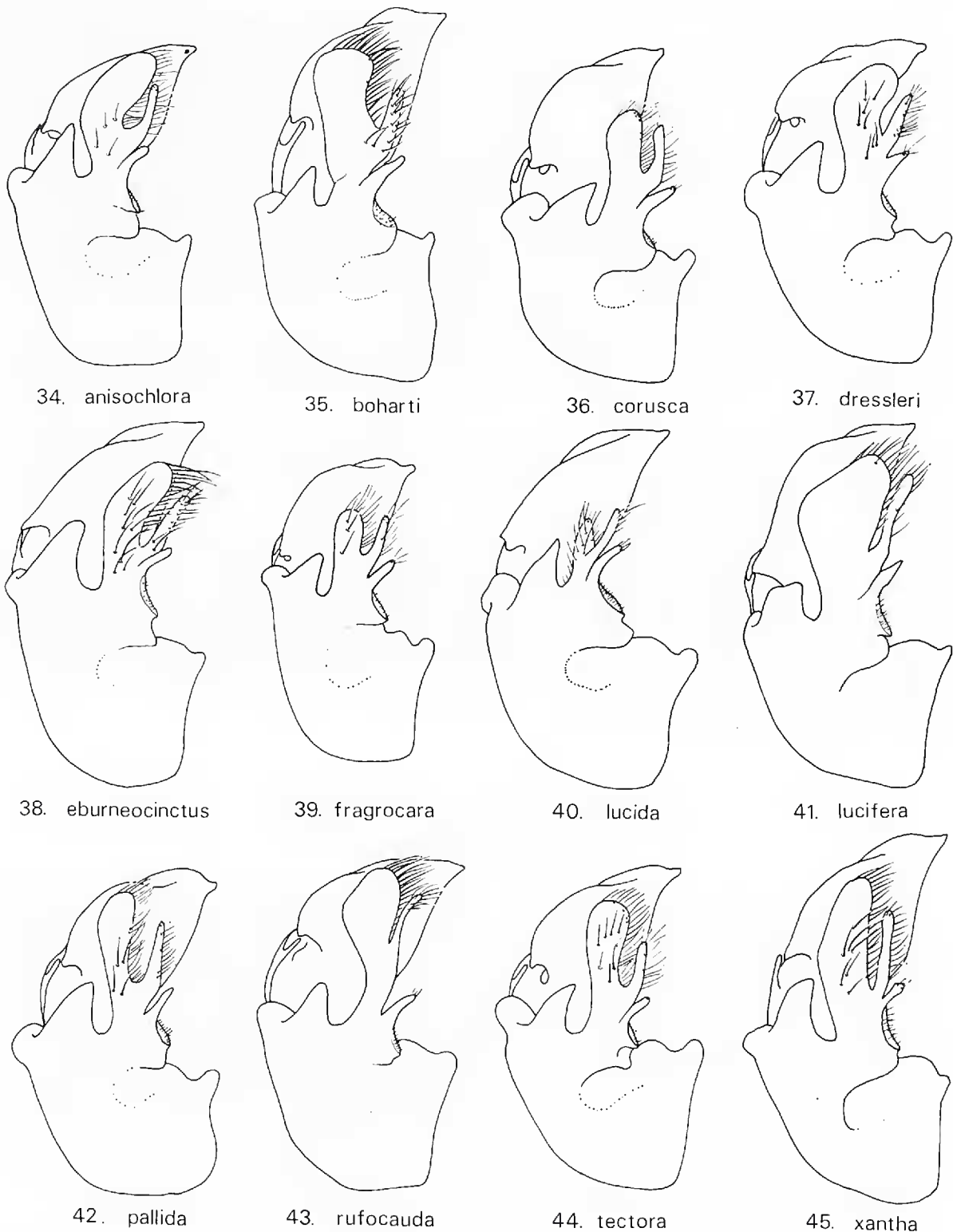
Though very similar to *chrysopyga* it is brighter in color and distinguishable by the red posterior corners of tergum II in both sexes. The female has a shorter tongue than *chrysopyga*. The male has three vertical welts on the clypeus, *chrysopyga* has only one. This species is tagged RD-296 in some collections. It is found in Peru and Panama.

### **Euplusia tectora, new species** (Figs. 20, 32, 44)

Male: body length 17mm; tongue length 17mm, reaching tip of abdomen; clypeus centrally coppery; rest of face green; rest of head black; scutal patches and tegula dark blue-green; rest of thorax black; legs black with some metallic highlights; hindtibia covered with sparse appressed coppery pubescence, long posterior fringe yellow; tergum I black with black setae; II-VII coppery with yellow setae; clypeus with horseshoe shaped welt with partially inserted medial ridge; face with large striatiform punctures becoming small along ocular margin and in antennal depressions, polished and impunctate around sockets; interantennal space with broad impunctate polished stripe; frons with small and scattered large punctures; vertex with micropunctation and scattered large punctures; labrum with three vertical welts, broadly rounded in lateral view; mesopleuron laterally with small and medium punctures; midtibial brush row wider than tall, anterior felty patch more than half as long and half as wide as posterior one; hindtibia with one pointed process above spurs; sternum VIII lobes three times as long as wide and half as tall as far apart (fig. 20); IX with two apical points in lateral view (fig. 32); gonostylar ventral lobe longer than dorsal lobe; gonocoxal dorsal lobe a third as long as gonostylus (fig. 44).

Holotype Male, Frijoles, Canal Zone, Panama, VI-28-1968 (R.L. Dressler, UCD). Paratypes, 6 ♂♂, same data as Type.

This is another species very similar to both *surinamensis* and *mexicana*. The tongue is longer in *tectora* than in either of the other species and the hindtibia lacks the stripe of short appressed gold pubescence on the posterior margin found in the others. The females are practically impossible to differentiate among these three species except by geographic distribution. This species is tagged RD-88 in some collections. It is found only in central Panama.



Figs. 34-45. Male genital capsule lateral view. 34-40, 42-45, *Euplusia*; 41, *Eufriesia*.

***Euplusia xantha*, new species**  
(Figs. 21, 33, 45)

Male: body length 20 mm; tongue length 6mm, reaching midcoxa; rest of head black; scutal patches green; rest of thorax black; hindtibia with band of short appressed gold pubescence on posterior margin above slit, long posterior fringe black; forewings with medial cell darkened; tergum I dark brown with dense pale yellow setae; II-VII green with dense yellow setae; clypeus with one medial ridge and two parenthesis shaped sublateral ridges, punctures shallow, medium sized, denser in antennal sockets; frons with scattered medium and small deep punctures; vertex with small and micropunctures; labrum

with two sublateral carinae and shorter medial ridge, pointed in lateral view; mesopleuron laterally with medium and small punctures; midtibial brush row wider than tall, not separate from anterior felty patch, anterior patch half as long and wide as posterior one; tergum VII not posteriorly cleft; sternum VIII lobes twice as long as wide and far apart (fig. 21); sternum IX produced into two apical points in lateral view (fig. 33); gonostylus ventral lobe shorter than dorsal lobe; gonocoxal dorsal lobe half as long as gonostylus (fig. 45).

Female: body length 20mm; tongue length 9mm, reaching hindcoxa; head, thorax and legs dark brown; tergum I-VI as in male; clypeus with one medial carina, depressed around tentorial pits, with medium punctures; antennal depressions with dense shallow medium punctures, polished and impunctate around socket; frons and vertex with dense small and micropunctures; labrum with three ridges.

Holotype Male, Rockstone, Mazaruni Potaro, Guyana, attracted to methyl salicylate, VIII-10-1970 (N.H. Williams, USNM). Paratypes, 2 ♀♀, Kartabo, Bartica Dist., British Guiana, VII-9-1919.

The pale yellow setae on tergum I but no black banding on tergum II is characteristic for this species. It is similar to *fallax* but differs in the following characters: the male has only a narrow band of yellow pubescence on the hindtibia rather than fully clothed as in *fallax*, the gonostylar ventral lobe is shorter than the dorsal lobe and the labral carinae are thin and bladelike; the female has a broad face depressed around the tentorial pits, the clypeus has a low impunctate medial welt and the terga are densely clothed in yellow setae with the setae on tergum I frequently paler.

### ***Eufriesia lucifera*, new species**

(Figs. 17, 29, 41)

Male: body length 16mm; tongue length 6mm, reaching midcoxa; face green; rest of head, thorax, legs and terga I and II black with black setae; hindtibia long posterior fringe black; terga III-VII coppery or yellowish green depending on angle of light, with yellowish orange setae; clypeus with two sublateral carinae and low medial welt; face, frons and vertex with small scattered punctures, polished and impunctate around ocelli; labrum with two sublateral carinae and low medial welt, appearing flat in lateral view; mesopleuron laterally with small and medium punctures; midtibia lacking brush row, anterior felty patch half as long and wide as posterior one; sternum VIII lobes as wide as long and far apart (fig. 17); IX produced into two apical points and apically expanded in lateral view (fig. 29); gonostylar ventral lobe as long as dorsal lobe; gonocoxal dorsal lobe a fourth as long as gonostylus (fig. 41).

Female: body length 19mm; tongue length 7mm, reaching midcoxa; coloration as in male; clypeus with medial stripe polished and impunctate; face with deep medium punctures becoming denser at vertex between ocelli; labrum with strong medial ridge slightly depressed on either side of ridge.

Holotype Male, 19km north El Llano, El Llano-Cartí Rd., Panama Prov., Panama, IV-3-1975 (M.L. Siri, UCD). Paratypes, 2 ♂♂, same data as Type.

This species is readily distinguishable from *Eufriesia pulchra* by the dark head and median clypeal welt in the male. The only other species in this genus, *pulchra*, has a bright yellow or green metallic head with yellow facial hair. The facial hair in *lucifera* is black. The male genitalia is also characteristic with the apex of sternum VIII broadly expanded in *lucifera* and simple in *pulchra*. This species is tagged as RD-237 in some collections. It is found in Panama, Costa Rica, Colombia and Ecuador.